



# APPENDIX E

RE: U.S. Patent Application No. 08/961,956

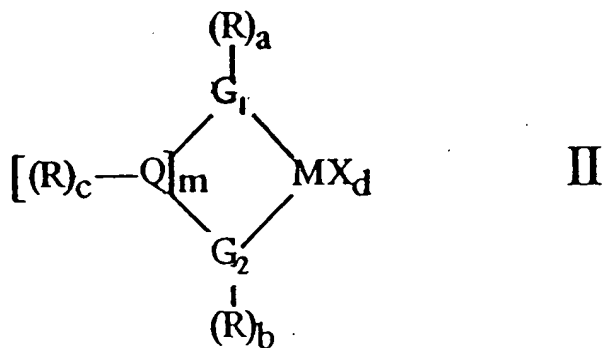
Applicant: Jose Sancho Royo, et al.

Title: "Catalytic Systems . . ."

Our Ref. No.: 616282-6/JP/B-3379

Please amend currently pending Claims 56-62, 65, 66, 69, 70, 75-80, and 84-89 as indicated below, wherein the portions being added are underlined and the portions being deleted are enclosed in braces.

Claim 56. (amended once) A catalyst for polymerization of alpha-olefins, wherein the catalyst comprises a cocatalyst and a catalyst component, wherein the catalyst component comprises a metallocene complex and a support, wherein the metallocene complex is supported on the support, wherein the metallocene complex is defined by formula I or II:



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wherein:

R groups are equal to or different from each other; each R is independently hydrogen or a radical containing from 1 to 20 carbon atoms; each R optionally contains a heteroatom selected from the group consisting of boron, germanium, tin, lead, and elements from groups {14 through} 15 and 16 of the periodic table of the elements {and boron}; at least one R group in the formula I and at least one R group in the formula II {contains} contain an  $\text{OSiR}''_3$  group, wherein R'' is selected from the group consisting of: linear  $\text{C}_1\text{-C}_{20}$  alkyl, branched  $\text{C}_1\text{-C}_{20}$  alkyl, {linear}  $\text{C}_3\text{-C}_{20}$  cycloalkyl, {branched  $\text{C}_3\text{-C}_{20}$  cycloalkyl, linear}  $\text{C}_6\text{-C}_{20}$  aryl, {branched  $\text{C}_6\text{-C}_{20}$  aryl,} linear  $\text{C}_7\text{-C}_{20}$  alkenyl, branched  $\text{C}_7\text{-C}_{20}$  alkenyl, linear  $\text{C}_7\text{-C}_{20}$  arylalkyl, branched  $\text{C}_7\text{-C}_{20}$  arylalkyl, linear  $\text{C}_7\text{-C}_{20}$  arylalkenyl, branched  $\text{C}_7\text{-C}_{20}$  arylalkenyl, linear  $\text{C}_7\text{-C}_{20}$  alkylaryl, and branched  $\text{C}_7\text{-C}_{20}$  alkylaryl;

Q is selected from the group consisting of: boron and elements from groups 14 and 16 of the periodic table; when  $m > 1$ , Q groups are equal to or different from each other; free valences of every Q are filled with the R group or groups {according to a value of c}; two R groups optionally are bonded to form a ring having from 5 to 8 atoms, wherein the ring having from 5 to 8 atoms is directly bonded to Q;  $m$  {ranges} is an integer ranging from 1 to 4;

the G groups in the formula I are equal to or different from each other; the G groups,  $G_1$ , and  $G_2$  are each independently {is} a cyclic organic group bonded to M through a  $\pi$  bond, {G contains} a cyclopentadienyl ring that optionally is fused with one or more other rings, or {G is each independently are} an atom selected from the group consisting of elements from groups 15 and 16 of the periodic table; wherein at least one G group in the formula I is the cyclopentadienyl ring that optionally is fused with one or

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more other rings; wherein the R group that contains the OSiR"<sub>3</sub> group in the formula I is directly bonded to the cyclopentadienyl ring that optionally is fused with one or more other rings; wherein in the formula II, G<sub>1</sub> or G<sub>2</sub> is the cyclopentadienyl ring that optionally is fused with one or more other rings; wherein in the formula II, the R group that contains the OSiR"<sub>3</sub> group is directly bonded to O or to the cyclopentadienyl ring that optionally is fused with one or more other rings;

{G<sub>1</sub> and G<sub>2</sub> are equal to or different from each other; G<sub>1</sub> and G<sub>2</sub> have the same meaning as G;}

M is a metal selected from the group consisting of: elements from groups 3, 4, and 10 of the periodic table, lanthanides, and actinides;

X groups are equal to or different from each other; X is selected from the group consisting of: halogen, hydrogen, OR'', N(R'')<sub>2</sub>, C<sub>1</sub>-C<sub>20</sub> alkyl, and C<sub>6</sub>-C<sub>20</sub> aryl; wherein R'' is selected from the group consisting of: linear C<sub>1</sub>-C<sub>20</sub> alkyl, branched C<sub>1</sub>-C<sub>20</sub> alkyl, {linear} C<sub>3</sub>-C<sub>20</sub> cycloalkyl, {branched C<sub>3</sub>-C<sub>20</sub> cycloalkyl, linear} C<sub>6</sub>-C<sub>20</sub> aryl, {branched C<sub>6</sub>-C<sub>20</sub> aryl,} linear C<sub>7</sub>-C<sub>20</sub> alkenyl, branched C<sub>7</sub>-C<sub>20</sub> alkenyl, linear C<sub>7</sub>-C<sub>20</sub> arylalkyl, branched C<sub>7</sub>-C<sub>20</sub> arylalkyl, linear C<sub>7</sub>-C<sub>20</sub> arylalkenyl, branched C<sub>7</sub>-C<sub>20</sub> arylalkenyl, linear C<sub>7</sub>-C<sub>20</sub> alkylaryl, and branched C<sub>7</sub>-C<sub>20</sub> alkylaryl;

x is an integer greater than or equal to 1 {or 2}, y is an integer greater than or equal to 2 {or 3} in such a way that x + y = 3, 4, 5, or 6;

d is an integer ranging from 0 to 2; and a, b and c are integers from 0 to 10 in such a way that a + b + c ≥ 1;

wherein the metallocene complex is supported on the support by means of a bond resulting from a reaction of the OSiR"<sub>3</sub> group of the metallocene complex with a reactive group on a surface of the

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support; and wherein the  $\text{OSiR}''_3$  group is not directly bonded to Q when Q {is} contains Si.

Claim 57. (amended once) A catalyst as claimed in Claim 56 wherein in the formula I {or} and the formula II each R is independently selected from the group consisting of: hydrogen,  $\{\text{SiR}'_3\}$ , linear  $\text{C}_1\text{-C}_{20}$  alkyl, branched  $\text{C}_1\text{-C}_{20}$  alkyl,  $\{\text{linear}\}$   $\text{C}_3\text{-C}_{20}$  cycloalkyl,  $\{\text{branched}\}$   $\text{C}_3\text{-C}_{20}$  cycloalkyl, linear  $\text{C}_6\text{-C}_{20}$  aryl,  $\{\text{branched}\}$   $\text{C}_6\text{-C}_{20}$  aryl, linear  $\text{C}_7\text{-C}_{20}$  alkenyl, branched  $\text{C}_7\text{-C}_{20}$  alkenyl, linear  $\text{C}_7\text{-C}_{20}$  arylalkyl, branched  $\text{C}_7\text{-C}_{20}$  arylalkyl, linear  $\text{C}_7\text{-C}_{20}$  arylalkenyl, branched  $\text{C}_7\text{-C}_{20}$  arylalkenyl, linear  $\text{C}_7\text{-C}_{20}$  alkylaryl, and branched  $\text{C}_7\text{-C}_{20}$  alkylaryl; {and} wherein optionally each R group contains a heteroatom selected from the group consisting of: boron, germanium, tin, lead, and elements of groups {14 through} 15 and 16 of the periodic table of the elements {and boron}; and wherein at least one R group in the formula I and at least one R group in the formula II contain the  $\text{OSiR}''_3$  group.

Claim 58. (amended once) A catalyst as claimed in Claim 56 wherein in the formula I {or} and the formula II M is selected from the group consisting of: Ti, Zr, and Hf.

Claim 59. (amended once) A catalyst as claimed in Claim 56 wherein in the formula I {or} and the formula II the R group {containing} that contains the group  $\{\text{OSiR}''\}$   $\text{OSiR}''_3$  is selected from the group consisting of:  $-\text{CH}_2\text{-CH}_2\text{-OSiMe}_3$ ,  $-\text{CH}_2\text{-CH}_2\text{-CH}_2\text{-OSiMe}_3$ ,  $-\text{CH}_2\text{-O-CH}_2\text{-OSiMe}_3$ , and  $-\text{O-CH}_2\text{-CH}_2\text{-OSiMe}_3$ , {, and  $-\text{SiMe}_2\text{-CH}_2\text{-CH}_2\text{-OSiMe}_3$ }.

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Claim 60. (amended once) A catalyst as claimed in Claim 56 wherein in the formula I each G is independently cyclopentadienyl or indenyl; M is zirconium; x is 2; y is 2; each R is independently C<sub>1</sub>-C<sub>4</sub> alkyl, wherein at least one hydrogen of one R is substituted with the OSiR"<sub>3</sub> group, wherein R" is selected from the group consisting of: Me, Et, and Pr.

Claim 61. (amended once) A catalyst as claimed in Claim 57 wherein in the formula II M is zirconium; G<sub>1</sub> and G<sub>2</sub> are each independently cyclopentadienyl or indenyl; each R is independently hydrogen{,} or a C<sub>1</sub>-C<sub>4</sub> alkyl wherein at least one hydrogen of one R is substituted with the OSiR"<sub>3</sub> {or a SiR'<sub>2</sub>-OSiR"<sub>3</sub>} group, wherein R" is selected from the group consisting of: methyl, ethyl, and propyl; {[(R)<sub>c</sub>Q]<sub>m</sub>} and wherein if [(R)<sub>c</sub>-Q]<sub>m</sub> does not contain the OSiR"<sub>3</sub> group, then [(R)<sub>c</sub>-Q]<sub>m</sub> is H<sub>2</sub>C-CH<sub>2</sub>, CRH-CH<sub>2</sub>, RHC-SiR'<sub>2</sub>, R<sub>2</sub>C-SiR'<sub>2</sub>, {and} or SiRR', wherein R' is selected from the group consisting of linear C<sub>1</sub>-C<sub>20</sub> alkyl, branched C<sub>1</sub>-C<sub>20</sub> alkyl, C<sub>3</sub>-C<sub>20</sub> cycloalkyl, C<sub>6</sub>-C<sub>20</sub> aryl, linear C<sub>7</sub>-C<sub>20</sub> alkenyl, branched C<sub>7</sub>-C<sub>20</sub> alkenyl, linear C<sub>7</sub>-C<sub>20</sub> arylalkyl, branched C<sub>7</sub>-C<sub>20</sub> arylalkyl, linear C<sub>7</sub>-C<sub>20</sub> arylalkenyl, branched C<sub>7</sub>-C<sub>20</sub> arylalkenyl, linear C<sub>7</sub>-C<sub>20</sub> alkylaryl, and branched C<sub>7</sub>-C<sub>20</sub> alkylaryl.

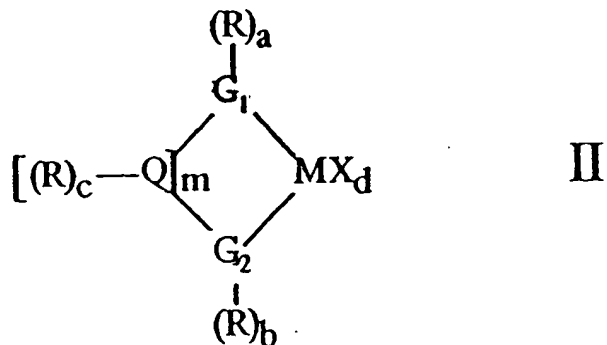
Claim 62. (Amended once) A catalyst as claimed in Claim 57 wherein in the formula II M is titanium; wherein G<sub>2</sub> is an oxygen or a nitrogen atom; wherein G<sub>1</sub> is a cyclopentadienyl, indenyl or fluorenyl ring; {[(R)<sub>c</sub>Q]<sub>m</sub>} and wherein if [(R)<sub>c</sub>-Q]<sub>m</sub> does not contain the OSiR"<sub>3</sub> group, then [(R)<sub>c</sub>-Q]<sub>m</sub> is H<sub>2</sub>C-CH<sub>2</sub>, CRH-CH<sub>2</sub>, RHC-SiR'<sub>2</sub>, R<sub>2</sub>C-SiR'<sub>2</sub>, {and} or SiRR', wherein R' is selected from the group

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consisting of linear C<sub>1</sub>-C<sub>20</sub> alkyl, branched C<sub>1</sub>-C<sub>20</sub> alkyl, C<sub>3</sub>-C<sub>20</sub> cycloalkyl, C<sub>6</sub>-C<sub>20</sub> aryl, linear C<sub>7</sub>-C<sub>20</sub> alkenyl, branched C<sub>7</sub>-C<sub>20</sub> alkenyl, linear C<sub>7</sub>-C<sub>20</sub> arylalkyl, branched C<sub>7</sub>-C<sub>20</sub> arylalkyl, linear C<sub>7</sub>-C<sub>20</sub> arylalkenyl, branched C<sub>7</sub>-C<sub>20</sub> arylalkenyl, linear C<sub>7</sub>-C<sub>20</sub> alkylaryl, and branched C<sub>7</sub>-C<sub>20</sub> alkylaryl.

Claim 65. (amended once) A process for preparing a catalyst as claimed in Claim 56, {wherein the catalyst comprises a cocatalyst and a catalyst component, wherein the catalyst component comprises a metallocene complex and a support, wherein the metallocene complex is supported on the support,} wherein the process comprises the following steps:

- (a) impregnation on a support, under anhydrous conditions and an inert atmosphere at a temperature between -20°C and 90°C, of a solution comprising at least one metallocene complex and a cocatalyst {on the support}, wherein the metallocene complex is defined by formula I or II



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wherein:

R groups are equal to or different from each other; each R is independently hydrogen or a radical containing from 1 to 20 carbon atoms; each R optionally contains a heteroatom selected from the group consisting of boron, germanium, tin, lead, and elements from groups {14 through} 15 and 16 of the periodic table of the elements {and boron}; at least one R group in the formula I and at least one R group in the formula II {contains} contain an  $\text{OSiR}''_3$  group, wherein R'' is selected from the group consisting of: linear  $\text{C}_1\text{-C}_{20}$  alkyl, branched  $\text{C}_1\text{-C}_{20}$  alkyl, {linear}  $\text{C}_3\text{-C}_{20}$  cycloalkyl, {branched  $\text{C}_3\text{-C}_{20}$  cycloalkyl, linear}  $\text{C}_6\text{-C}_{20}$  aryl, {branched  $\text{C}_6\text{-C}_{20}$  aryl,} linear  $\text{C}_7\text{-C}_{20}$  alkenyl, branched  $\text{C}_7\text{-C}_{20}$  alkenyl, linear  $\text{C}_7\text{-C}_{20}$  arylalkyl, branched  $\text{C}_7\text{-C}_{20}$  arylalkyl, linear  $\text{C}_7\text{-C}_{20}$  arylalkenyl, branched  $\text{C}_7\text{-C}_{20}$  arylalkenyl, linear  $\text{C}_7\text{-C}_{20}$  alkylaryl, and branched  $\text{C}_7\text{-C}_{20}$  alkylaryl;

Q is selected from the group consisting of: boron and elements from groups 14 and 16 of the periodic table; when  $m > 1$ , Q groups are equal to or different from each other; free valences of every Q are filled with the R group or groups {according to a value of c}; two R groups optionally are bonded to form a ring having from 5 to 8 atoms, wherein the ring having from 5 to 8 atoms is directly bonded to Q;  $m$  {ranges} is an integer ranging from 1 to 4;

the G groups in the formula I are equal to or different from each other; the G groups,  $G_1$ , and  $G_2$  are each independently {is} a cyclic organic group bonded to M through a  $\pi$  bond, {G contains} a cyclopentadienyl ring that optionally is fused with one or more other rings, or {G is each independently are} an atom selected from the group consisting of elements from groups 15 and 16 of the periodic table; wherein at least one G group in the formula I is the cyclopentadienyl ring that optionally is fused with one or

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more other rings; wherein the R group that contains the OSiR"<sub>3</sub> group in the formula I is directly bonded to the cyclopentadienyl ring that optionally is fused with one or more other rings; wherein in the formula II, G<sub>1</sub> or G<sub>2</sub> is the cyclopentadienyl ring that optionally is fused with one or more other rings; wherein in the formula II, the R group that contains the OSiR"<sub>3</sub> group is directly bonded to O or to the cyclopentadienyl ring that optionally is fused with one or more other rings;

{G<sub>1</sub> and G<sub>2</sub> are equal to or different from each other; G<sub>1</sub> and G<sub>2</sub> have the same meaning as G;}

M is a metal selected from the group consisting of: elements from groups 3, 4, and 10 of the periodic table, lanthanides, and actinides;

X groups are equal to or different from each other; X is selected from the group consisting of: halogen, hydrogen, OR'', N(R'')<sub>2</sub>, C<sub>1</sub>-C<sub>20</sub> alkyl, and C<sub>6</sub>-C<sub>20</sub> aryl; wherein R'' is selected from the group consisting of: linear C<sub>1</sub>-C<sub>20</sub> alkyl, branched C<sub>1</sub>-C<sub>20</sub> alkyl, {linear} C<sub>3</sub>-C<sub>20</sub> cycloalkyl, {branched C<sub>3</sub>-C<sub>20</sub> cycloalkyl, linear} C<sub>6</sub>-C<sub>20</sub> aryl, {branched C<sub>6</sub>-C<sub>20</sub> aryl,} linear C<sub>7</sub>-C<sub>20</sub> alkenyl, branched C<sub>7</sub>-C<sub>20</sub> alkenyl, linear C<sub>7</sub>-C<sub>20</sub> arylalkyl, branched C<sub>7</sub>-C<sub>20</sub> arylalkyl, linear C<sub>7</sub>-C<sub>20</sub> arylalkenyl, branched C<sub>7</sub>-C<sub>20</sub> arylalkenyl, linear C<sub>7</sub>-C<sub>20</sub> alkylaryl, and branched C<sub>7</sub>-C<sub>20</sub> alkylaryl;

x is an integer greater than or equal to 1 {or 2}, y is an integer greater than or equal to 2 {or 3} in such a way that x + y = 3, 4, 5, or 6;

d is an integer ranging from 0 to 2; and a, b and c are integers from 0 to 10 in such a way that a + b + c ≥ 1;

wherein the OSiR"<sub>3</sub> group of the metallocene complex reacts with a reactive group of the support to bond the metallocene complex to the support, thereby forming a resulting solid comprising the



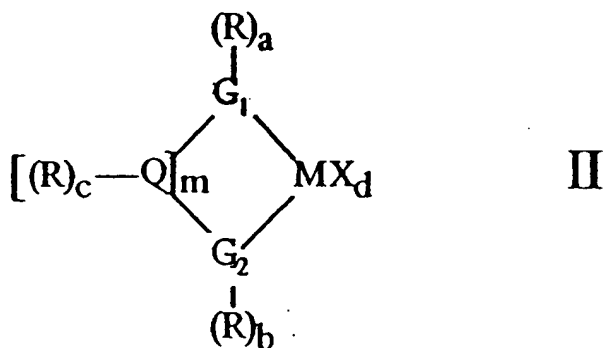
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metallocene complex and the cocatalyst supported on the support; wherein the  $\text{OSiR}''_3$  group is not directly bonded to Q when Q {is} contains Si; and

- (b) filtration and washing the resulting solid from step (a) with a solvent comprising an aliphatic hydrocarbon or an aromatic hydrocarbon.

Claim 66. (amended once) A process for preparing a catalyst as claimed in Claim 56, {wherein the catalyst comprises a cocatalyst and a catalyst component, wherein the catalyst component comprises a metallocene complex and a support, wherein the metallocene complex is supported on the support,} wherein the process comprises the following steps:

- (a) depositing at least one metallocene complex and a cocatalyst on {the} a support by using a solution comprising a solvent, {and} the metallocene complex, and the cocatalyst {to heterogenize}, wherein the metallocene complex is defined by formula I or II:



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wherein:

R groups are equal to or different from each other; each R is independently hydrogen or a radical containing from 1 to 20 carbon atoms; each R optionally contains a heteroatom selected from the group consisting of boron, germanium, tin, lead, and elements from groups {14 through} 15 and 16 of the periodic table of the elements {and boron}; at least one R group in the formula I and at least one R group in the formula II {contains} contain an  $\text{OSiR}''_3$  group, wherein R'' is selected from the group consisting of: linear  $\text{C}_1\text{-C}_{20}$  alkyl, branched  $\text{C}_1\text{-C}_{20}$  alkyl, {linear}  $\text{C}_3\text{-C}_{20}$  cycloalkyl, {branched  $\text{C}_3\text{-C}_{20}$  cycloalkyl, linear}  $\text{C}_6\text{-C}_{20}$  aryl, {branched  $\text{C}_6\text{-C}_{20}$  aryl,} linear  $\text{C}_7\text{-C}_{20}$  alkenyl, branched  $\text{C}_7\text{-C}_{20}$  alkenyl, linear  $\text{C}_7\text{-C}_{20}$  arylalkyl, branched  $\text{C}_7\text{-C}_{20}$  arylalkyl, linear  $\text{C}_7\text{-C}_{20}$  arylalkenyl, branched  $\text{C}_7\text{-C}_{20}$  arylalkenyl, linear  $\text{C}_7\text{-C}_{20}$  alkylaryl, and branched  $\text{C}_7\text{-C}_{20}$  alkylaryl;

Q is selected from the group consisting of: boron and elements from groups 14 and 16 of the periodic table; when  $m > 1$ , Q groups are equal to or different from each other; free valences of every Q are filled with the R group or groups {according to a value of  $c$ }; two R groups optionally are bonded to form a ring having from 5 to 8 atoms, wherein the ring having from 5 to 8 atoms is directly bonded to Q;  $m$  {ranges} is an integer ranging from 1 to 4;

the G groups in the formula I are equal to or different from each other; the G groups,  $G_1$ , and  $G_2$  are each independently {is} a cyclic organic group bonded to M through a  $\pi$  bond, {G contains} a cyclopentadienyl ring that optionally is fused with one or more other rings, or {G is each independently are} an atom selected from the group consisting of elements from groups 15 and 16 of the periodic table; wherein at least one G group in the formula I is the cyclopentadienyl ring that optionally is fused with one or

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more other rings; wherein the R group that contains the OSiR"<sub>3</sub> group in the formula I is directly bonded to the cyclopentadienyl ring that optionally is fused with one or more other rings; wherein in the formula II, G<sub>1</sub> or G<sub>2</sub> is the cyclopentadienyl ring that optionally is fused with one or more other rings; wherein in the formula II, the R group that contains the OSiR"<sub>3</sub> group is directly bonded to O or to the cyclopentadienyl ring that optionally is fused with one or more other rings;

{G<sub>1</sub> and G<sub>2</sub> are equal to or different from each other; G<sub>1</sub> and G<sub>2</sub> have the same meaning as G;}

M is a metal selected from the group consisting of: elements from groups 3, 4, and 10 of the periodic table, lanthanides, and actinides;

X groups are equal to or different from each other; X is selected from the group consisting of: halogen, hydrogen, OR'', N(R'')<sub>2</sub>, C<sub>1</sub>-C<sub>20</sub> alkyl, and C<sub>6</sub>-C<sub>20</sub> aryl; wherein R'' is selected from the group consisting of: linear C<sub>1</sub>-C<sub>20</sub> alkyl, branched C<sub>1</sub>-C<sub>20</sub> alkyl, {linear} C<sub>3</sub>-C<sub>20</sub> cycloalkyl, {branched C<sub>3</sub>-C<sub>20</sub> cycloalkyl, linear} C<sub>6</sub>-C<sub>20</sub> aryl, {branched C<sub>6</sub>-C<sub>20</sub> aryl,} linear C<sub>7</sub>-C<sub>20</sub> alkenyl, branched C<sub>7</sub>-C<sub>20</sub> alkenyl, linear C<sub>7</sub>-C<sub>20</sub> arylalkyl, branched C<sub>7</sub>-C<sub>20</sub> arylalkyl, linear C<sub>7</sub>-C<sub>20</sub> arylalkenyl, branched C<sub>7</sub>-C<sub>20</sub> arylalkenyl, linear C<sub>7</sub>-C<sub>20</sub> alkylaryl, and branched C<sub>7</sub>-C<sub>20</sub> alkylaryl;

x is an integer greater than or equal to 1 {or 2}, y is an integer greater than or equal to 2 {or 3} in such a way that x + y = 3, 4, 5, or 6;

d is an integer ranging from 0 to 2; and a, b and c are integers from 0 to 10 in such a way that a + b + c ≥ 1;

wherein the OSiR"<sub>3</sub> group of the metallocene complex reacts with a reactive group of the support to bond the metallocene complex to the support, thereby forming a resulting solid comprising the

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metallocene complex and the cocatalyst supported on the support;  
wherein the OSiR"<sub>3</sub> group is not directly bonded to O when O  
contains Si;

- (b) eliminating the solvent; and
- (c) bringing the resulting solid to a temperature between 25 and 150°C.

Claim 69. (amended once) A catalyst according to Claim 57, wherein in the formula I {or} and the formula II M is selected from the group consisting of: Ti, Zr, and Hf.

Claim 70. (amended once) A catalyst according to Claim 59 {58}, wherein in the formula I {or} and the formula II M is selected from the group consisting of: Ti, Zr, and Hf.

Claim 75. (amended once) A process as claimed in Claim 65 wherein in the formula I {or} and the formula II each R is independently selected from the group consisting of: hydrogen, {SiR'<sub>3</sub>,} linear C<sub>1</sub>-C<sub>20</sub> alkyl, branched C<sub>1</sub>-C<sub>20</sub> alkyl, {linear} C<sub>3</sub>-C<sub>20</sub> cycloalkyl, {branched C<sub>3</sub>-C<sub>20</sub> cycloalkyl, linear} C<sub>6</sub>-C<sub>20</sub> aryl, {branched C<sub>6</sub>-C<sub>20</sub> aryl,} linear C<sub>7</sub>-C<sub>20</sub> alkenyl, branched C<sub>7</sub>-C<sub>20</sub> alkenyl, linear C<sub>7</sub>-C<sub>20</sub> arylalkyl, branched C<sub>7</sub>-C<sub>20</sub> arylalkyl, linear C<sub>7</sub>-C<sub>20</sub> arylalkenyl, branched C<sub>7</sub>-C<sub>20</sub> arylalkenyl, linear C<sub>7</sub>-C<sub>20</sub> alkylaryl, and branched C<sub>7</sub>-C<sub>20</sub> alkylaryl; {and} wherein optionally each R group contains a heteroatom selected from the group consisting of: boron, germanium, tin, lead, and elements of groups {14 through} 15 and 16 of the periodic table of the elements {and boron}; and wherein at least one R group in the formula I and at least one R group in the formula II contain the

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OSiR''<sub>3</sub> group.

Claim 76. (amended once) A process according to Claim 65 wherein in the formula I {or} and the formula II M is selected from the group consisting of: Ti, Zr, and Hf.

Claim 77. (amended once) A process according to Claim 65 wherein in the formula I {or} and the formula II the R group {containing} that contains the group {OSiR''} OSiR''<sub>3</sub> is selected from the group consisting of: -CH<sub>2</sub>-CH<sub>2</sub>-OSiMe<sub>3</sub>, -CH<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>-OSiMe<sub>3</sub>, -CH<sub>2</sub>-O-CH<sub>2</sub>-OSiMe<sub>3</sub>, and -O-CH<sub>2</sub>-CH<sub>2</sub>-OSiMe<sub>3</sub>{, and -SiMe<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>-OSiMe<sub>3</sub>}.

Claim 78. (Amended once) A process according to Claim 65 wherein in the formula I each G is independently cyclopentadienyl or indenyl; M is zirconium; **x** is 2; **y** is 2; each R is independently C<sub>1</sub>-C<sub>4</sub> alkyl, wherein at least one hydrogen of one R is substituted with the OSiR''<sub>3</sub> group, wherein R'' is selected from the group consisting of: Me, Et, and Pr.

Claim 79. (amended once) A process according to Claim 75 wherein in the formula II M is zirconium; G<sub>1</sub> and G<sub>2</sub> are each independently cyclopentadienyl or indenyl; each R is independently hydrogen{,} or a C<sub>1</sub>-C<sub>4</sub> alkyl wherein at least one hydrogen of one R is substituted with the OSiR''<sub>3</sub> {or a SiR'<sub>2</sub>-OSiR''<sub>3</sub>} group, wherein R'' is selected from the group consisting of: methyl, ethyl, and

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propyl;  $\{[(R)_cQ]_m\}$  and wherein if  $[(R)_c-O]_m$  does not contain the  $OSiR''_3$  group, then  $[(R)_c-O]_m$  is  $H_2C-CH_2$ ,  $CRH-CH_2$ ,  $RHC-SiR'_2$ ,  $R_2C-SiR'_2$ , {and} or  $SiRR'$ , wherein  $R'$  is selected from the group consisting of linear  $C_1-C_{20}$  alkyl, branched  $C_1-C_{20}$  alkyl,  $C_3-C_{20}$  cycloalkyl,  $C_6-C_{20}$  aryl, linear  $C_7-C_{20}$  alkenyl, branched  $C_7-C_{20}$  alkenyl, linear  $C_7-C_{20}$  arylalkyl, branched  $C_7-C_{20}$  arylalkyl, linear  $C_7-C_{20}$  arylalkenyl, branched  $C_7-C_{20}$  arylalkenyl, linear  $C_7-C_{20}$  alkylaryl, and branched  $C_7-C_{20}$  alkylaryl.

Claim 80. (amended once) A process according to Claim 65 wherein in the formula II M is titanium; wherein  $G_2$  is an oxygen or a nitrogen atom; wherein  $G_1$  is a cyclopentadienyl, indenyl or fluorenyl ring;  $\{[(R)_cQ]_m\}$  and wherein if  $[(R)_c-O]_m$  does not contain the  $OSiR''_3$  group, then  $[(R)_c-O]_m$  is  $H_2C-CH_2$ ,  $CRH-CH_2$ ,  $RHC-SiR'_2$ ,  $R_2C-SiR'_2$ , {and} or  $SiRR'$ , wherein  $R'$  is selected from the group consisting of linear  $C_1-C_{20}$  alkyl, branched  $C_1-C_{20}$  alkyl,  $C_3-C_{20}$  cycloalkyl,  $C_6-C_{20}$  aryl, linear  $C_7-C_{20}$  alkenyl, branched  $C_7-C_{20}$  alkenyl, linear  $C_7-C_{20}$  arylalkyl, branched  $C_7-C_{20}$  arylalkyl, linear  $C_7-C_{20}$  arylalkenyl, branched  $C_7-C_{20}$  arylalkenyl, linear  $C_7-C_{20}$  alkylaryl, and branched  $C_7-C_{20}$  alkylaryl.

Claim 84. (amended once) A process as claimed in Claim 66 wherein in the formula I {or} and the formula II each R is independently selected from the group consisting of: hydrogen,  $\{SiR'_3\}$  linear  $C_1-C_{20}$  alkyl, branched  $C_1-C_{20}$  alkyl, {linear}  $C_3-C_{20}$  cycloalkyl, {branched  $C_3-C_{20}$  cycloalkyl, linear}  $C_6-C_{20}$  aryl, {branched  $C_6-C_{20}$  aryl,} linear  $C_7-C_{20}$  alkenyl, branched  $C_7-C_{20}$

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alkenyl, linear C<sub>7</sub>-C<sub>20</sub> arylalkyl, branched C<sub>7</sub>-C<sub>20</sub> arylalkyl, linear C<sub>7</sub>-C<sub>20</sub> arylalkenyl, branched C<sub>7</sub>-C<sub>20</sub> arylalkenyl, linear C<sub>7</sub>-C<sub>20</sub> alkylaryl, and branched C<sub>7</sub>-C<sub>20</sub> alkylaryl; {and} wherein optionally each R group contains a heteroatom selected from the group consisting of: boron, germanium, tin, lead, and elements of groups {14 through} 15 and 16 of the periodic table of the elements {and boron}; wherein at least one R group in the formula I and at least one R group in the formula II contain the OSiR"<sub>3</sub> group.

Claim 85. (amended once) A process according to Claim 66 wherein in the formula I {or} and the formula II M is selected from the group consisting of: Ti, Zr, and Hf.

Claim 86. (amended once) A process according to Claim 66 wherein in the formula I {or} and the formula II the R group {containing} that contains the group {OSiR"} OSiR"<sub>3</sub> is selected from the group consisting of: -CH<sub>2</sub>-CH<sub>2</sub>-OSiMe<sub>3</sub>, -CH<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>-OSiMe<sub>3</sub>, -CH<sub>2</sub>-O-CH<sub>2</sub>-OSiMe<sub>3</sub>, and -O-CH<sub>2</sub>-CH<sub>2</sub>-OSiMe<sub>3</sub>{, and -SiMe<sub>2</sub>-CH<sub>2</sub>-CH<sub>2</sub>-OSiMe<sub>3</sub>}.

Claim 87. (Amended once) A process according to Claim 66 wherein in the formula I each G is independently cyclopentadienyl or indenyl; M is zirconium; x is 2; y is 2; each R is independently C<sub>1</sub>-C<sub>4</sub> alkyl, wherein at least one hydrogen of one R is substituted with the OSiR"<sub>3</sub> group, wherein R" is selected from the group consisting of: Me, Et, and Pr.

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Claim 88. (amended once) A process according to Claim 84 wherein in the formula II M is zirconium; G<sub>1</sub> and G<sub>2</sub> are each independently cyclopentadienyl or indenyl; each R is independently hydrogen{,} or a C<sub>1</sub>-C<sub>4</sub> alkyl wherein at least one hydrogen of one R is substituted with the OSiR''<sub>3</sub> {or a SiR'′<sub>2</sub>-OSiR''<sub>3</sub>} group, wherein R'' is selected from the group consisting of: methyl, ethyl, and propyl; {[ (R)<sub>c</sub>Q]<sub>m</sub>} and wherein if [(R)<sub>c</sub>-Q]<sub>m</sub> does not contain the OSiR''<sub>3</sub> group, then [(R)<sub>c</sub>-Q]<sub>m</sub> is H<sub>2</sub>C-CH<sub>2</sub>, CRH-CH<sub>2</sub>, RHC-SiR'′<sub>2</sub>, R<sub>2</sub>C-SiR'′<sub>2</sub>, {and} or SiRR'′, wherein R' is selected from the group consisting of linear C<sub>1</sub>-C<sub>20</sub> alkyl, branched C<sub>1</sub>-C<sub>20</sub> alkyl, C<sub>3</sub>-C<sub>20</sub> cycloalkyl, C<sub>6</sub>-C<sub>20</sub> aryl, linear C<sub>7</sub>-C<sub>20</sub> alkenyl, branched C<sub>7</sub>-C<sub>20</sub> alkenyl, linear C<sub>7</sub>-C<sub>20</sub> arylalkyl, branched C<sub>7</sub>-C<sub>20</sub> arylalkyl, linear C<sub>7</sub>-C<sub>20</sub> arylalkenyl, branched C<sub>7</sub>-C<sub>20</sub> arylalkenyl, linear C<sub>7</sub>-C<sub>20</sub> alkylaryl, and branched C<sub>7</sub>-C<sub>20</sub> alkylaryl.

Claim 89. (amended once) A process according to Claim 66 wherein in the formula II M is titanium; wherein G<sub>2</sub> is an oxygen or a nitrogen atom; wherein G<sub>1</sub> is a cyclopentadienyl, indenyl or fluorenyl ring; {[ (R)<sub>c</sub>Q]<sub>m</sub>} and wherein if [(R)<sub>c</sub>-Q]<sub>m</sub> does not contain the OSiR''<sub>3</sub> group, then [(R)<sub>c</sub>-Q]<sub>m</sub> is H<sub>2</sub>C-CH<sub>2</sub>, CRH-CH<sub>2</sub>, RHC-SiR'′<sub>2</sub>, R<sub>2</sub>C-SiR'′<sub>2</sub>, {and} or SiRR'′, wherein R' is selected from the group consisting of linear C<sub>1</sub>-C<sub>20</sub> alkyl, branched C<sub>1</sub>-C<sub>20</sub> alkyl, C<sub>3</sub>-C<sub>20</sub> cycloalkyl, C<sub>6</sub>-C<sub>20</sub> aryl, linear C<sub>7</sub>-C<sub>20</sub> alkenyl, branched C<sub>7</sub>-C<sub>20</sub> alkenyl, linear C<sub>7</sub>-C<sub>20</sub> arylalkyl, branched C<sub>7</sub>-C<sub>20</sub> arylalkyl, linear C<sub>7</sub>-C<sub>20</sub> arylalkenyl, branched C<sub>7</sub>-C<sub>20</sub> arylalkenyl, linear C<sub>7</sub>-C<sub>20</sub> alkylaryl, and branched C<sub>7</sub>-C<sub>20</sub> alkylaryl.